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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
10/540,156	06/21/2005	Yoshio Tsujino	1422-0679PUS1	6601
2292 7590 05/13/2008 BIRCH STEWART KOLASCH & BIRCH PO BOX 747 FALLS CHURCH, VA 22040-0747				
EXAMINER KOSAR, AARON J				
ART UNIT 1651		PAPER NUMBER		
NOTIFICATION DATE 05/13/2008		DELIVERY MODE ELECTRONIC		

Please find below and/or attached an Office communication concerning this application or proceeding.

The time period for reply, if any, is set in the attached communication.

Notice of the Office communication was sent electronically on above-indicated "Notification Date" to the following e-mail address(es):

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Office Action Summary

Application No.

10/540,156

Applicant(s)

TSUJINO ET AL.

Examiner

AARON J. KOSAR

Art Unit

1651

Period for Reply -- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) OR THIRTY (30) DAYS, WHICHEVER IS LONGER, FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133). Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

Status

- 1) ☒ Responsive to communication(s) filed on 04 January 2008.
- 2a) ☒ This action is **FINAL**. 2b) ☐ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

Disposition of Claims

- 4) ☒ Claim(s) 12-20 is/are pending in the application.
- 4a) Of the above claim(s) 17 is/are withdrawn from consideration.
- 5) ☐ Claim(s) _____ is/are allowed.
- 6) ☒ Claim(s) 12-16 and 18-20 is/are rejected.
- 7) ☐ Claim(s) _____ is/are objected to.
- 8) ☐ Claim(s) _____ are subject to restriction and/or election requirement.

Application Papers

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☒ The drawing(s) filed on 04 January 2008 is/are: a) ☒ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- Replacement drawing sheet(s) including the correction is required if the drawing(s) is objected to. See 37 CFR 1.121(d).
- 11) ☐ The oath or declaration is objected to by the Examiner. Note the attached Office Action or form PTO-152.

Priority under 35 U.S.C. § 119

- 12) ☐ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☐ All b) ☐ Some * c) ☐ None of:
1. ☐ Certified copies of the priority documents have been received.
 2. ☐ Certified copies of the priority documents have been received in Application No. _____.
 3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).

* See the attached detailed Office action for a list of the certified copies not received.

Attachment(s)

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO/SF/08)
- Paper No(s)/Mail Date 1/4/2008.
- 4) ☐ Interview Summary (PTO-413)
- Paper No(s)/Mail Date _____.
- 5) ☐ Notice of Informal Patent Application
- 6) ☐ Other: _____

DETAILED ACTION

Election/Restrictions

Applicant's election of Group I, claim 1-5 and 9-10, in the reply filed on June 11, 2007 was acknowledged in the Office Action of September 4, 2007. Because applicant did not distinctly and specifically point out the supposed errors in the restriction requirement, the election was treated as an election **without** traverse (MPEP § 818.03(a)) whereby claims 6-8 and 11 were withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim.

Applicant's amendment and argument filed January 4, 2008 in response to the non-final rejection, are acknowledged and have been fully considered.

Applicant has amended the claims by canceling claims 1-11 and introducing new claims 12-20. The elected invention and species of the canceled claims are instantly drawn to claims 12-16 and 18-20. Claim 17 is withdrawn from withdrawn from further consideration pursuant to 37 CFR 1.142(b) as being drawn to a nonelected inventions, there being no allowable generic or linking claim.

Applicant's election of the species of "a neutral phenol oxidase having the properties (3)-(7) as recited in claim 2", corresponding to the disclosed phenol oxidase I, is examined as drawn to the "phenol oxidase" species corresponding to claim 12 (a). 12 (b) and (c) are drawn to the subject matter of nonelected species and have been withdrawn, there being no allowable generic or linking claim.

Claims 12-20 are pending. Claims 12-16 and 18-20 are pending *and* have been examined on the merits to the extent the claims are drawn to the elected invention/species. Please note,

arguments presented which are directed towards non-elected representative species/inventions are presented as evidence of the non-allowability of the generic invention. Any rejection and/or objection not specifically addressed is herein withdrawn.

Information Disclosure Statement

The information disclosure statement (IDS) submitted on January 4, 2008 was filed after the mailing date of the Office Action on September 4, 2007. The submission is in compliance with the provisions of 37 CFR 1.97. Accordingly, the information disclosure statement is being considered by the Examiner.

Please note, the references **(BB)** and **(BC)**, were lined-through and *not* considered in the IDS of June 17, 2005. However, in the subsequent IDS of September 21, 2005, the corresponding support documents **(BF)** and **(BG)** were provided and thus **(BB)** and **(BC)** *were* considered as indicated by the initialed references therein. Please note also that the references provided in the instant IDS of January 4, 2008 are thus redundant to the references of record and have been initialed to clarify the record and affirm their consideration.

Additionally, the reference of LEE **(CA)** has been listed separately on a PTO-892 (X: PTO-892, 5/2008) to indicate the further consideration of the reference to the extent of the certified translation provided with the instant Office Action.

Claim Rejections - 35 USC § 112

The following is a quotation of the first paragraph of 35 U.S.C. 112:

The specification shall contain a written description of the invention, and of the manner and process of making and using it, in such full, clear, concise, and exact terms as to enable any person skilled in the art to which it pertains, or with which it is most nearly connected, to make and use the same and shall set forth the best mode contemplated by the inventor of carrying out his invention.

Claims 12-16 and 18-20 are rejected under 35 U.S.C. 112, second paragraph, as being indefinite for failing to particularly point out and distinctly claim the subject matter which applicant regards as the invention.

The term “phenol oxidase” is indefinite. The term is unclear, because phenol oxidase may have multiple meanings, each of which defines a distinct enzyme having separate status in the art and because the substrates disclosed (specification page 15) and claimed which define the enzyme appear to be from dissimilar or multiple enzymes; however, the claims must be drawn to a single invention (e.g. a phenol oxidase *or a* laccase *or* an enzyme having phenol oxidase and laccase activity (or having said activity conditionally defined if recited in the alternative, e.g. phenol oxidase “or” laccase, since phenol oxidase and laccase have separate classification status in the art).

Among the enzymes classified by the International Union of Biochemistry and Biology (IUBMB, <www.chem.qmul.ac.uk/iubmb/enzyme/EC1/>) and disclosed by Applicant which are most closely related to the claimed phenol oxidase - for example: *laccase* (EC 1.10.3.2); *monophenol monooxygenase* (EC 1.14.18.1), also known as *phenol oxidase*; and the enzymes listed in the specification, page 3 lines 4-5) - it remains unclear if Applicant’s elected species of phenol oxidase correlates to “phenol oxidase enzyme” and/or “laccase enzyme” of the instant claim. It is unclear if the elected invention and species is a single enzyme or a set of multiple enzymes and/or if the enzyme(s) have multiple activities (e.g. a 28kDa enzyme capable of

multiple activities as a laccase *and* a phenol oxidase) *or* if the enzyme activities are mutually exclusive (e.g. laccase or phenol oxidase). Furthermore, Applicant claims a “phenol oxidase” similar in name to the enzyme identified by EC 1.14.18.1 but also having activity with enzymes of EC 1.10.x that react with o-aminophenol, catechol, etc. as disclosed/claimed.

As it is unclear if single enzyme or multiple enzymes are defined by the invention and unclear as to whether the activity/activities fall(s) within one, more than one, or none of the above IUBMB enzyme classifications (EC) (i.e. in the absence of side-by-side comparisons of structure and function, to identify unifying or differentiating features of the claimed compound(s) versus the known enzymes, etc), the metes and bounds of the claims cannot be determined. Also, since, each of the myriad of combinations of the aforementioned components embraced by the claims (i.e. enzyme, activity, reactions, substrates, etc.) is a reasonable interpretation of the claims and each defines a distinct invention, one would not be able to determine the metes and bounds and claims, thereby rendering the claims indefinite.

The term “activity” is indefinite, because “activity” in the context of enzyme action requires reference of activity towards a substrate and/or reaction for that enzyme which may be assessed for the given conditions. The instant claims have been amended to require enzyme activity *per se*, but do not recite any substrate for which the activity is determined/dependent and the specification does not define how one would measure “activity” *per se*. Given the myriad of possible conditions, reactions and substrates for which activity may be tested, it is unclear which enzyme compositions possess the requisite “activity” and how “activity” does/does not correlate with the preceding terms in the claim, including the terms “phenol oxidase enzyme”, “laccase

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enzyme”, “catalyzes oxidation of..”, “catalyzes polymerization”, and “optimally catalyzes”. One would not be apprised as to the compounds embraced by the instant claims and one would not be able to determine the metes and bounds of the claims, thus rendering the claims indefinite.

Claim Rejections - 35 USC § 102

The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

The claims are generally drawn to a phenol oxidase. The dependent claims are further drawn to a phenol oxidase from *Flammulina* including *F. velutipes* including *F. velutipes* strain IFO 30601.

Claims 12-16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by NISHIZAWA. (Nishizawa, K., et al. Mycoscience 2003, 44, pages 19-23.).

NISHIZAWA teaches the organism *F. velutipes* IFO 30601, raised as a pure culture on potato dextrose agar and on cedar-sawdust-rice bran medium (“Organisms”, page 19). The organism and/or the pure culture is of the same strain as the organism of the instant claims, which, absent objective evidence to the contrary, the *F. velutipes* IFO 30601 taught by Nishizawa would intrinsically produce and possess the same phenol oxidase as the *F. velutipes* IFO 30601 of the instant claims.

Applicant has argued that Nishizawa teaches esterase activity, but not the claimed activity or isolation of the enzyme.

Applicant’s arguments have been fully considered but found not to be persuasive, because Nishizawa teaches isolating the enzyme to the extent of obtaining a cell-free extract

from the mycelia of cultured *F. velutipes* IFO 30601 (pages 19-20). Though Nishizawa teaches further purifying for the purpose of obtaining esterase enzymes, the cell-free composition using the extract of a culture from the identical organismal strain would be expected to intrinsically possess the claimed enzymes to the extent claimed, especially in the absence of objective evidence to the contrary. Nishizawa testing for the substrate-enzyme activities of esterases in the composition does not preclude the presence of phenol oxidase isolates in every instance of isolation/purification of the recited compositions; and thus Applicant's testing of substrates not disclosed by and in potentially different testing conditions than taught by Nishizawa (i.e. a lack of side-by-side comparisons) also does not preclude the presence of the claimed enzyme(s) in the composition of Nishizawa. Additionally, absent a definition or further structure of a "dye", claim 16 is deemed to be anticipated by the enzyme and/or the components intrinsic to the disclosed composition and thus properly included in the rejection. Thus Nishizawa is still deemed to anticipate the claims.

Claims 12-16 and 18-20 are rejected under 35 U.S.C. 102(b) as being anticipated by SCHANEL (Biol.Plant., Acad. Sci. Bohemoslov. 1966, 8(4)292-8.(Abstract)) or LAN (Lan, Rui-Fang. Fujian Shifan Daxue Xuebao, Ziran Kexueban. 2002, 18(3),58-60.(Abstract)) or LEE (CA: PTO-1449, 6/21/2005)

SCHANEL and LAN each teach a phenol oxidase enzyme (laccase) which is produced by a *Flammulina velutipes* (formerly assigned to *Collybia velutipes*), which appears to be the phenol oxidase of the claimed invention and would intrinsically have the properties claimed. Lan also teaches extraction of the enzyme.

LEE teaches a *F. velutipes* laccase having pH stability in the range of 5-8 (figure 2; optimally approximately around 6.6 in citrate or Clark Lub's buffer) and temperature stability around 40°C (50% at 60°C, figure 4).

Applicant has argued that neither Lan nor Schanel teaches an isolated enzyme. Applicant has argued that the K_m of the instantly claimed enzyme differs from the enzyme of LEE by a factor of 10^3 .

Applicant's arguments have been fully considered but, respectfully have been found to be not persuasive, because SCHANEL teaches cultivation of *C. velutipes*/white-rot fungi and other fungi combined with isolation/purification comprising filtering and dialyzing of the composition (see for example Schanel, materials and methods, English translation). LAN teaches isolated enzyme by teaching extraction of laccase from various organisms, including *F. velutipes* (see for example Lan, title, abstract, English translation). Additionally, arguments directed toward K_m differences between the enzyme of LEE and instantly disclosed enzymes, are drawn to combinations, claim elements, and properties not required by the instant claims and drawn to an enzyme "distinguishable from the laccase of *F. velutipes*" of Lee, specifically an *F. velutipes* IFO 30601 obtained enzyme, which is a narrower scope, and thus not required by claims 12-16, 18, or 19 (see Declaration, ¶ 5). Furthermore, absent a definition or further structure of a "dye", claim 16 is deemed to be anticipated by the enzyme and/or the components intrinsic to the disclosed compositions of Schanel, Lan, and Lee and thus properly included in the rejection.

Thus Schanel, Lan, and Lee are still deemed to anticipate the claims.

Claims 12 is rejected under 35 U.S.C. 102(b) as being anticipated by LINDBERG (Lindeberg, G. *Physiologica Plantarum*. 1948,1,196-205. (English Translation)).

LINDBERG teaches a phenol oxidase (o-phenol oxidase) which is produced by a *Flammulina* (formerly assigned to *Collybia*), which appears to be the phenol oxidase of the claimed invention and would intrinsically have the properties claimed. Lindeberg also teaches cultivating and isolating *M. foetidus* o-diphenol oxidase via filtration and dialysis (page 203, ¶1-2).

Applicant has argued that Lindeberg does not teach an isolated enzyme.

Applicant's arguments have been fully considered but, respectfully have been found to be not persuasive, because Lindeberg teaches an isolated phenol oxidase (o-diphenol oxidase) wherein, in the absence of objective evidence to the contrary, the enzyme of Lindeberg would be expected to intrinsically comprise an enzyme of the degree of purity and possessing the intrinsic properties to the extent claimed.

Claim 12, 15, and 16 are rejected under 35 U.S.C. 102(b) as being anticipated by KIISKINEN (CA: PTO-1449 8/17/2006, Kiiskinen, et al. *Appl Microbiol Biotechnol*. 2002, 59, 198-204.)

The general teachings of the claims are above. Further, the claims are drawn to an enzyme having an optimum pH between 5.0 and 7.0, reacting with (oxidation of) 2,6-dimethoxyphenol among other substrates. The dependent claims are also drawn to a composition comprising the neutral phenol oxidase.

Kiiskinen anticipates the claims, teaching a phenol oxidase comprising a broad optimum pH between 5 and 7.5 (vs. guaiacol; and between pH 6 and 7 vs. syringaldazine) and catalyzing a reaction with a dye, including 2,6-dimethoxyphenol (column 1, page 199).

Applicant has argued that Kiiskinen does not teach an isolated enzyme or the claimed reactivity/activity properties. However, this is not found to be persuasive, because Kiiskinen teaches an isolated enzyme by teaching a purified enzyme with oxidizing activity towards 2,6-dimethoxyphenol. Though Kiiskinen may be silent with respect to some intrinsic physical or functional properties of the enzyme versus those tested in the instant Application, absent objective evidence to the contrary, Kiiskinen is still deemed to anticipate the claims.

Claim Rejections - 35 USC § 103

The following is a quotation of 35 U.S.C. 103(a) which forms the basis for all obviousness rejections set forth in this Office action:

(a) A patent may not be obtained though the invention is not identically disclosed or described as set forth in section 102 of this title, if the differences between the subject matter sought to be patented and the prior art are such that the subject matter as a whole would have been obvious at the time the invention was made to a person having ordinary skill in the art to which said subject matter pertains. Patentability shall not be negated by the manner in which the invention was made.

The claims are generally drawn to a neutral phenol oxidase as presented above. The dependent claims are further drawn to a phenol oxidase from *Flammulina velutipes*, including *F. velutipes* IFO 30601.

Claims 12, 15, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over PALMIERI (Appl. Microbiol. Biotechnol. 1993, 39(4/5), pages 632-6.) in combination with FARRELL (Phil. Trans R. Soc. Lond A. 1987, 321, 549-553.).

The general teachings of the claims are above.

PALMIERI teaches a basidiomycete of origin from the same taxonomic Order (*Agaricales*) as the instantly claimed enzyme by teaching a *Pleurotus ostreatus* phenol oxidase,

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which has a pH 5.0-7.0 optimum activity (for example activity after 5hrs incubation, 25 °C, pH 5-7, versus at lower pH: ¶1, page 635). The enzyme appears to be similar to the instantly claimed phenol oxidase. Furthermore, Palmieri teaches decoloration of dye compositions (decoloration of bleach plant effluents, page 632), which FARRELL further supports in teaching industrial applications of lignin-transforming fungal enzymes including reducing (as in decreasing the prevalence of) the chromophoric groups in lignin bleaching, reduction of brightness inversion, and decolorization (abstract, page 549; industrial applications, page 552).

The cited reference discloses a composition comprising an enzyme which appears to be identical to the presently claimed composition, since it was isolated from a related basidiomycete fungus which produces a phenol oxidase with the same or similar properties. Although the claimed composition (with respect to tested properties, for example: oxidation of *o*-aminophenol, etc at pH 6.5.) is not identical to the referenced composition, with regard to some unidentified characteristics, the differences between that which is claimed and that which is disclosed, is so slight that the referenced composition is likely to inherently possess the same characteristics of the claimed composition, particularly in view of the similar characteristics which they have been shown to share (e.g. ability to react with lignin, etc.). Thus, the claimed composition would have been obvious to those of ordinary skill in the art within the meaning of 35 USC § 103(a).

One would have been motivated to use the enzyme in a dye composition/ composition containing a dye because Farrell teaches the general benefit of using the enzymes in such compositions, such as to decolorize, bleach, etc., also teaching the advantage of displacing chlorine-based oxidizing agents, reducing brightness inversion while maintaining increased pulp mechanical strength, etc. (Farrell, page 552). One would also had a reasonable expectation of

success in making a dye composition (the non-decolored lignin substrate or veratryl alcohol), since a dye composition treated with fungal lignolytic enzyme is taught be Farrell to retain substrate (ligninase or alcohol-oxidizing) activity. Additionally, compositions comprising a substrate (such as dye), and an enzyme selective for the substrate would be obvious to one of skill and routinely optimized in the art. Thus the claimed dye composition and/or a composition comprising a phenol oxidase enzyme and a dye substrate would be obvious to one of skill.

Accordingly, the claimed invention as a whole was at least *prima facie* obvious, especially in the absence of sufficient, clear, and convincing evidence to the contrary.
(see *Remarks*, below)

Claims 12, 13, 15, 16, 18, and 19 are rejected under 35 U.S.C. 103(a) as being unpatentable over KLEEN (US Patent Application 11/455,4334, as evidence of DE 103.59.577.0).

The general teachings of the claims are above.

Kleen teaches a dye composition comprising an enzyme oxidizing agent including laccase and phenol oxidases including enzymes of *Acremonia*, *Stachybotrys*, or *Pleurotus* origin (§ 133, page 8, column 1) capable of oxidizing a dye including *o*-aminophenol, 4-hydroxyindole, etc (page 5, column 1). Though Kleen does not teach the specific combination of the elected phenol oxidase species with the above dye substrates, Kleen does teach that enzymes, particularly the laccases (§ 133, page 8, column 1), directly oxidize the dye precursors. Absent evidence to the contrary, the enzyme taught by Kleen appears to be similar or an obvious variant of the enzyme of the instant claims as both Kleen and the instant claims teach/are drawn to an enzyme which is capable of oxidizing dyes, including *o*-aminophenol. Furthermore, it would be

obvious to combine the enzyme with a dye that the enzyme is capable of oxidizing, because combining enzymes with compounds that are transformed by the enzyme (substrates) is routinely performed in the art.

Accordingly, the claimed invention as a whole was at least *prima facie* obvious, especially in the absence of sufficient, clear, and convincing evidence to the contrary.

A reference is good not only for what it teaches by direct anticipation but also for what one of ordinary skill in the art might reasonably infer from the teachings. (*In re Opprecht* 12 USPQ 2d 1235, 1236 (Fed Cir. 1989); *In re Bode* 193 USPQ 12 (CCPA) 1976). In light of the forgoing discussion, the Examiner concludes that the subject matter defined by the instant claims would have been obvious within the meaning of 35 USC 103(a).

From the teachings of the references, it is apparent that one of ordinary skill in the art would have had a reasonable expectation of success in producing the claimed invention. Therefore, the invention as a whole was *prima facie* obvious to one of ordinary skill in the art at the time the invention was made, as evidenced by the references, especially in the absence of evidence to the contrary.

Remarks

Applicant has argued that the inclusion of the limitations recited in claim 12(a) is not rejected in light of the cited references of Palmeiri/Farrell or Kleen; however, this is not found to be persuasive, because canceled claim 1 was directed towards a *neutral phenol oxidase*, wherein amended claim 12 is presently directed towards a *phenol oxidase/laccase* and whereby the limitations of (a) are deemed to be intrinsic properties of the enzyme of claim 12 and of the enzyme of Palmeiri/Farrell or Kleen, especially in the absence of objective evidence to the

contrary, side-by-side comparison, and/or evidence to the criticality of some undisclosed feature. Thus the prior art is still deemed to be obvious over the claims.

Please note, since the Office does not have the facilities for examining and comparing Applicants' composition with the composition of the prior art, the burden is on applicant to show a novel or unobvious difference between the claimed product and the product(s) of the prior art. See *In re Best*, 562 F.2d 1252, 195 USPQ 430 (CCPA 1977) and *In re Fitzgerald*, 619 F.2d 67, 205 USPQ 594 (CCPA 1980), and "as a practical matter, the Patent Office is not equipped to manufacture products by the myriad of processes put before it and then obtain prior art products and make physical comparisons therewith." *In re Brown*, 459 F.2d 531, 535, 173 USPQ 685, 688 (CCPA 1972).

Double Patenting

The nonstatutory double patenting rejection is based on a judicially created doctrine grounded in public policy (a policy reflected in the statute) so as to prevent the unjustified or improper timewise extension of the "right to exclude" granted by a patent and to prevent possible harassment by multiple assignees. A nonstatutory obviousness-type double patenting rejection is appropriate where the conflicting claims are not identical, but at least one examined application claim is not patentably distinct from the reference claim(s) because the examined application claim is either anticipated by, or would have been obvious over, the reference claim(s). See, e.g., *In re Berg*, 140 F.3d 1428, 46 USPQ2d 1226 (Fed. Cir. 1998); *In re Goodman*, 11 F.3d 1046, 29 USPQ2d 2010 (Fed. Cir. 1993); *In re Longi*, 759 F.2d 887, 225 USPQ 645 (Fed. Cir. 1985); *In re Van Ornum*, 686 F.2d 937, 214 USPQ 761 (CCPA 1982); *In re Vogel*, 422 F.2d 438, 164 USPQ 619 (CCPA 1970); and *In re Thorington*, 418 F.2d 528, 163 USPQ 644 (CCPA 1969).

A timely filed terminal disclaimer in compliance with 37 CFR 1.321(c) or 1.321(d) may be used to overcome an actual or provisional rejection based on a nonstatutory double patenting ground provided the conflicting application or patent either is shown to be commonly owned with this application, or claims an invention made as a result of activities undertaken within the scope of a joint research agreement.

Effective January 1, 1994, a registered attorney or agent of record may sign a terminal disclaimer. A terminal disclaimer signed by the assignee must fully comply with 37 CFR 3.73(b).

The general teachings of the claims are above. The dependent claims further teach a

phenol oxidase produced by the fungus, *F. velutipes* IFO 30601.

Claims 12-16 and 18-20 are rejected on the ground of nonstatutory obviousness-type double patenting as being unpatentable over claims 1-9 of U.S. Patent No. 7,135,184 ("'**184**"). Although the conflicting claims are not identical, they are not patentably distinct from each other because both claim sets disclose the same phenol oxidase enzyme from the same source with the same reactivity. Furthermore, it is noted that the instant claims do not require a distinct isolation of the enzyme and the claims of '184 claim the enzyme both as a culture containing the enzyme and purified to the extent of removing the hyphae from the culture.

Remarks

The Terminal Disclaimer filed January 4, 2008 has not been approved, because it appears to have an inadvertent discrepancy between the typed/printed name and the signature, though each name and respective Reg. No. appears to be from Attorneys of Record (customer #02292). Please note, however, filing a replacement terminal disclaimer with the corrected identification of the Reg. No., signature, and typed name would be sufficient to overcome this ground of rejection.

Conclusion

Please note, the references of LINDEBERG and SCHANEL, previously cited by the Examiner, are provided herewith. Additionally, English-language translations of LAN and LEE have also been provided and listed on a PTO-892.

Any inquiry concerning this communication or earlier communications from the examiner should be directed to AARON J. KOSAR whose telephone number is (571)270-3054. The examiner can normally be reached on Monday-Thursday, 7:30AM-5:00PM, ALT. Friday,EST.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, Mike Wityshyn can be reached on (571) 272-0926. The fax phone number for the organization where this application or proceeding is assigned is 571-273-8300. Information regarding the status of an application may be obtained from the Patent Application Information Retrieval (PAIR) system. Status information for published applications may be obtained from either Private PAIR or Public PAIR. Status information for unpublished applications is available through Private PAIR only. For more information about the PAIR system, see <http://pair-direct.uspto.gov>. Should you have questions on access to the Private PAIR system, contact the Electronic Business Center (EBC) at 866-217-9197 (toll-free). If you would like assistance from a USPTO Customer Service Representative or access to the automated information system, call 800-786-9199 (IN USA OR CANADA) or 571-272-1000.

Aaron Kosar
Examiner, Art Unit 1651

/Sandra Saucier/
Primary Examiner, Art Unit 1651